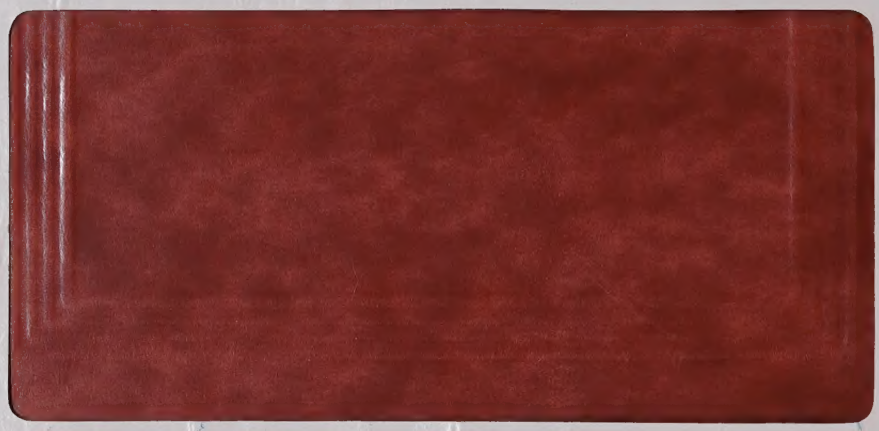
SD-101 DYNAMIC ANALYZER

INSTRUCTION MANUAL

REMOVE

PROPERTY OF DEPT. C-260
CALIBRATION & STANDARDS
DO NOT
REMOVE FROM AREA

SPECTRAL DYNAMICS CORPORATION OF SAN DIEGO



SERIAL NO. 075

SUPPLEMENT

TO THE

SD-101 DYNAMIC ANALYZER

INSTRUCTION MANUAL

FOR THE

SD-101 MARK II

PROPERTY OF DEPT. C-260
CALIBRATION & STANDARDS
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SPECTRAL DYNAMICS CORPORATION OF SAN DIEGO

1163 Morena Boulevard
San Diego, California 92110
Telephone: 714 - 276-2281

October 15, 1963

Spectral Dynamics Corporation of San Diego
8159 Engineer Road, P. O. Box 671
San Diego, California 92112

SUPPLEMENT

to the

SD-101 DYNAMIC ANALYZER

for the

SD-101 MARK II

Several features are incorporated in an SD-101A which distinguish it from an SD-101. These features are designed to increase the performance of the Dynamic Analyzer while widening the area of applications. Now a number of the refinements are being made available to present owners of the SD-101. Upon completion of the modification program, the SD-101 is re-designated as an SD-101 Mark II (figure A).

Features incorporated in the SD-101 Mark II are listed and described as follows:

Front Panel

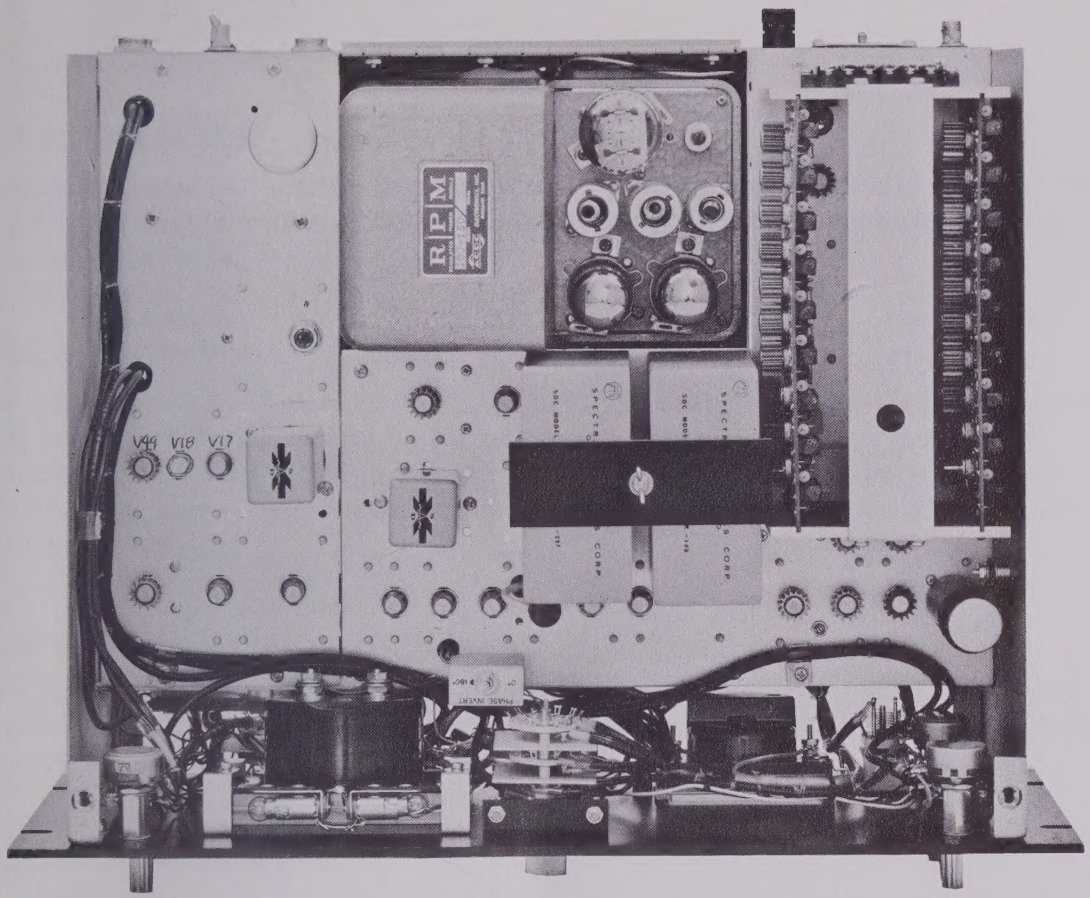
A new front panel is installed to facilitate incorporation of an overload indicator, a meter damping switch, and a phase shift control. It will also reflect the appropriate model number. The new panel is constructed of a thicker gage of aluminum which provides a much stronger support when rack mounting the Dynamic Analyzer.

Overload Indicator

The overload indicator is located on the front panel, adjacent to the large panel meter and directly above the signal input terminals. Its function is to flash when signals with crest factors (peak/RMS) greater than 4 to 1 above the specified maximum input signal are encountered. This indicates that the input signal is overloading the amplifiers.

Out Position of Filter Selector Switch

An OUT position is added to the filter selector switch. In this position, the signal provided to the signal input terminals on the dynamic analyzer is [redacted] displayed at the Filtered Signal terminals. The remainder of the analyzer circuits are rendered inoperative on the OUT position. This feature finds application when an SD-17 Sine Rejection Adapter is installed into the SD-101 Dynamic Analyzer.



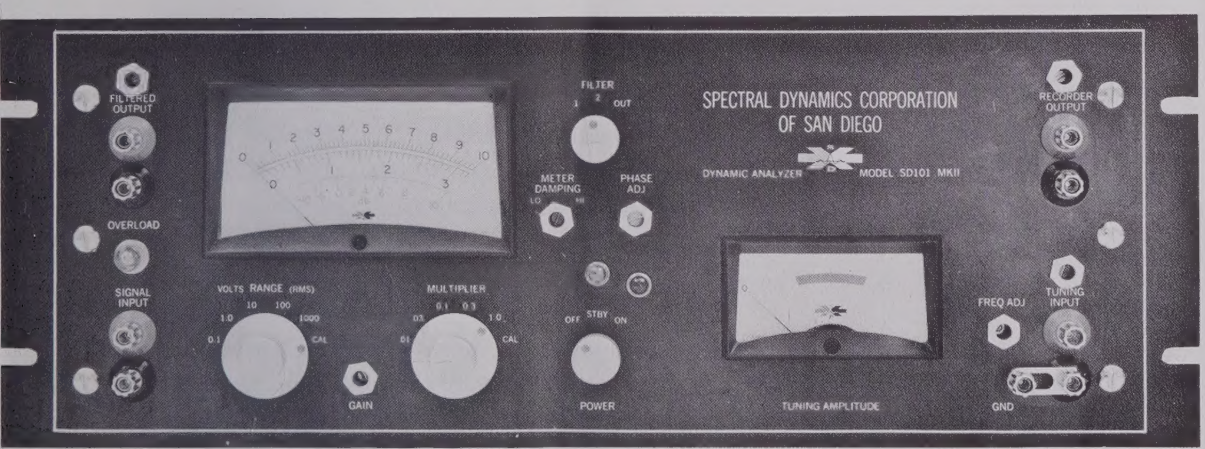


Figure A. SD-101 Mark II

Meter Damping Switch

The Meter Damping Switch is located adjacent to the large panel meter, and between the Filter Selector Switch and pilot lights. In the HI position, a damping capacitor is placed across the meter terminals.

Plug-In Module Type Demodulator

This plug-in module is located in the center of the analyzer on the high frequency plate, just forward of the power supply transformer and adjacent to the crystal filters. The demodulator has been redesigned and strategically laid out to minimize cross coupling. With the new demodulator, the stopband frequencies are rejected by at least 60 db through the SD-101.

Plug-In Module Type Low Pass Filter

The plug-in low pass filter is located on the low frequency plate, near the center. It replaces the former hard-wired filter and permits improved frequency response plus greater rejection of the high frequency components.

Overload Recovery Diodes

A double anode zener diode is placed across the grid resistor of V2 in the input amplifier. Under overload conditions it functions as a limiter, keeping recovery time short by preventing grid current flow in V2.

Change Crystal Filter Oven Operation from D.C. to A.C.

This modification requires the removal of components located in the power supply which formerly supplied DC heater voltage to the crystal filters. An A.C. circuit replaces the DC circuit, removing a former trouble area. In addition, the filters reach a stable operating temperature much sooner from turn-on time.

Engineering Change Orders

From the inception of the SD-101, a number of minor circuit improvements have been developed to improve the SD-101 operation. All applicable changes are incorporated into the analyzer during the modification program.

Phase Control

This circuit permits the operator to establish a given phase relationship between the input and output signals. Or in another application, the phase angles of the output signals of several channels, operating simultaneously, may be normalized.

Calibration

Upon completion of the updating program, the SD-101 Mark II is completely aligned and calibrated, and a functional checkout is performed.

TABLE OF REPLACEABLE PARTS

Replaceable parts for the SD-101 Mark II Dynamic Analyzer are the same as listed in Section V of the SD-101 Instruction Manual except as follows:

The following parts have been deleted:

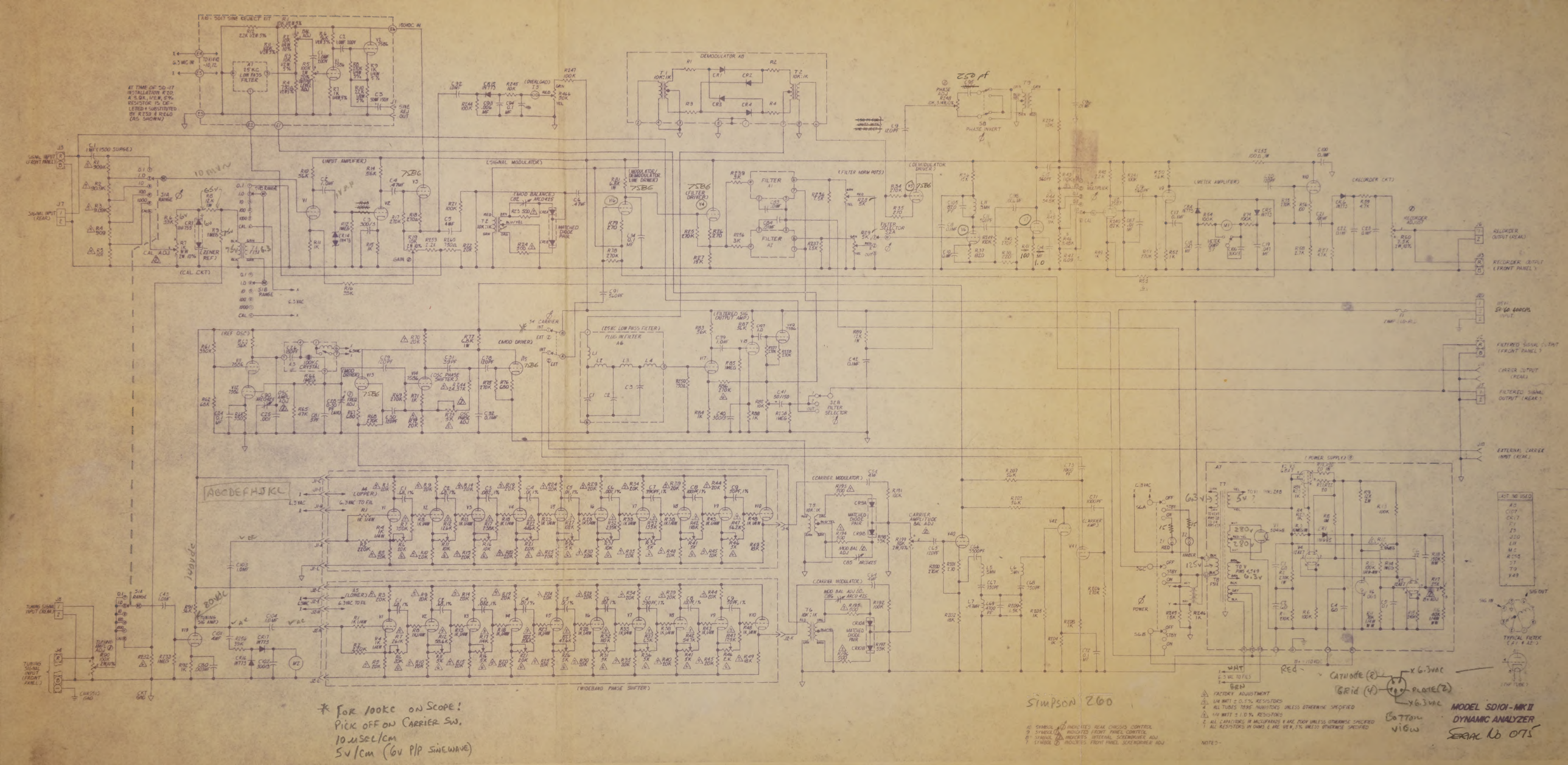
REFERENCE DESIGNATION	DESCRIPTION	PART NUMBER
R36	Resistor, 56K, 1/2W, 5%	20000-003
R42	Resistor, 15K, 1/2W, 5%	20000-010
R230	Resistor, 1 Meg, 1/2W, 5%	20000-002
R231	Resistor, 82K, 1/2W, 5%	20000-028
R242	Resistor, 100K, 1/2W, 5%	20000-004
R243	Resistor, 100K, 1/2W, 5%	20000-004
C13	Capacitor, 820 PF, 500V	20006-003
C88	Capacitor, 40/40 MF, 200/250 WVDC	20004-010
C89	Capacitor, 40/40 MF, 200/250 WVDC	20004-010
L1	Coil, 3 MH	20008-500

The following parts have been changed in value:

REFERENCE DESIGNATION	DESCRIPTION	PART NUMBER
R82	Resistor, 3K, 1/2W, 5%	20000-033
R86	Resistor, 220K, 1/2W, 5%	20000-023
R87	Resistor, 56K, 1/2W, 5%	20000-003
R88	Resistor, 1K, 1/2W, 5%	20000-027
C41	Capacitor, 50 MF, 150V	20004-011

The following parts have been added:

REFERENCE DESIGNATION	DESCRIPTION	PART NUMBER
R247	Resistor, 100K, 1/2W, 5%	20000-004
R248	Resistor, 10K, 1/2W, 5%	20000-020
R249	Potentiometer, 50K, .2W, 20%	20009-017
R250	Resistor, 100K, 1/2W, 5%	20000-004
R251	Potentiometer, 10K, 3/4W, 10%	13016-1
R252	Resistor, 100K, 1/2W, 5%	20000-004
R253	Potentiometer, 1K, 2W, 10%	20009-001
C92	Capacitor, 1 MF, 200V	20006-011
C93	Capacitor, .006 MF, 600V	20006-500
C94	Capacitor, 0.1 MF, 200V	20006-009
C95	Capacitor, 120 PF, 500V	20006-003
C96	Capacitor, .01 MF, 400V	20005-501
C97	Capacitor, 820 PF, 500V	20006-006
C98	Capacitor, .006 MF, 600V	20006-500
C99	Capacitor, 300 MF, 3V	20004-006
CR15	Diode, 1N773	20008-001
L11	Coil, 3 MH	20008-500
T9	Transformer	20011-015
A3	Low Pass Filter	20013-012


* FOR 100KC ON SCOPE!
PICK OFF ON CARRIER SW.
10 μSEC/cm
5V/cm (6V P/P SINEWAVE)
SIMPSON 260
MODEL SD101-MK II
DYNAMIC ANALYZER
SERIAL No 075
BOTTOM VIEW
CATHODE (8)
GRID (4)
PLATE (2)
X 6.3VAC
FACTORY ADJUSTMENT
ALL RESISTORS ARE 1/2 WATT ± 0.5% UNLESS OTHERWISE SPECIFIED
ALL TUBES 7236 UNLESS OTHERWISE SPECIFIED
ALL CAPACITORS IN MICROFARADS & ARE 200V UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS & ARE 1/2W, 5% UNLESS OTHERWISE SPECIFIED
NOTES:-
(SIGNAL MODULATORS)
(INPUT AMPLIFIER)
(METER AMPLIFIER)
(RECORDER CKT)
(CAL CKT)
(REF OSC)
(MOD DRIVER)
(ESBC LOW PASS FILTER)
(FILTERED SIG OUTPUT AMP)
(CARRIER MODULATOR)
(CARRIER AMPLITUDE BAL ADJ)
(WIDEBAND PHASE SHIFTER)
(TUNING SIG AMP)
(POWER SUPPLY)
(FILTER NORM POTS)
(DEMODULATOR DRIVER)
(OVERLOAD)
(MOD BALANCE)
(MODULATOR/DEMODULATOR LINE DRIVER)
(FILTER DRIVER)
(FILTER SELECTOR)
(CARRIER OUTPUT)
(EXTERNAL CARRIER INPUT)
(TYP TUBE)
(TYP FILTER)
SIGNAL INPUT (FRONT PANEL)
SIGNAL INPUT (REAR)
TUNING SIGNAL INPUT (REAR)
TUNING SIGNAL INPUT (FRONT PANEL)
RECORDER OUTPUT (REAR)
RECORDER OUTPUT (FRONT PANEL)
FILTERED SIGNAL OUTPUT (FRONT PANEL)
FILTERED SIGNAL OUTPUT (REAR)
SIG IN
SIG OUT
CHASSIS GND
EXT GND